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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,156

Applicant(s)

WANG ET AL.

Examiner

NICHOLAS SLOMS

Art Unit

2476

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/8/10
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is final. Claims 1-4 and 6-20 are rejected.

Response to Arguments

2. Applicant submitted a request for reconsideration on 11/8/2010 asserting the following arguments:

- (i) The 35 USC § 112 rejection based on the term “substantially” is improper.
- (ii) The amendment to claim 12 overcomes the 35 USC § 101 rejection.
- (iii) The prior art of record fails to teach “an original data stream.”
- (iv) The prior art of record fails to teach wherein “the predetermined pattern is substantially sinusoidal and comprises a predetermined period.”

Regarding (i), applicant’s arguments have been fully considered and are persuasive. The 35 USC § 112 rejection of claim 5 has been withdrawn.

Regarding (ii), claim 12 remains rejected under 35 USC § 101. The system as claimed may be interpreted as purely software, and as such is directed to non-statutory subject matter. The added limitation “...being implemented within a computing device” fails to detract the system from being purely software. In fact software usually, if not always, is implemented in a computing device. Particular attention is directed to Applicant’s specification, [0027], which reads “[t]he latency determination logic 116 may be implemented in hardware or software...”

Regarding (iii), Applicant’s arguments have been fully considered but are not persuasive. The system of Zhang produces a signal that is subsequently applied to both a test channel and a reference channel (column 3, lines 13-16). The production of this signal constitutes an original data stream and a predetermined pattern (Note column 3, “appropriate test signal, etc.”). The test

receiver receives both signals. Both signals may still include original data and a predefined pattern, though one may be received at a different point in time. For instance, signal delay is an impairment that may be identified (See e.g. column 4, lines 51-52).

Regarding (iv), Applicant's arguments have been fully considered but are not persuasive. See e.g. column 3, lines 16-20, "various frequencies". Frequency is nothing more than the inverse of a signal's period. Therefore, the designation of a test signal at a particular frequency constitutes a predetermined period. Further, such a designation is "substantially sinusoidal" inasmuch as a pure tone at a particular frequency is represented mathematically as a sine wave. The imparting of external noise factors causes a pure tone to lose some of its recognizable characteristics, as is known in the art; however, the signal remains substantially sinusoidal.

Information Disclosure Statement

3. An information disclosure statement (IDS) was submitted on 11/08/10. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 12-16 are rejected under 35 U.S.C. 101.

Regarding claims 12-16, there are no limitations in any of these claims that preclude the system from being purely software. Therefore, these claims are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6, 7, 12-15, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et al. (US 6,775,240), hereinafter “Zhang”.

Regarding claim 1, Zhang discloses a method comprising: receiving in a signal processing subsystem a first signal including an original data stream and a predetermined pattern; receiving in the signal processing subsystem a second signal including the original data stream and the predetermined pattern, the predetermined pattern is substantially sinusoidal and comprises a predetermined period (See figure 1. Reference and test path signals are received. See ¶ at column 3, line 13; also at column 5, line 1. Also see figure 4 and column 8, line 48. Also see explanation in section 2 above.); and

determining by the signal processing subsystem a transmission latency between the received first signal and the received second signal based on the predetermined pattern (See e.g. column 7, lines 50-65.).

Regarding claim 2, Zhang further discloses wherein the first signal is received from a first source and the second signal is received from a second source (See figure 1. The test path includes source elements different from the reference path.).

Regarding claim 3, Zhang further discloses inserting the predetermined pattern in the first and second signals prior to receiving the first and second signals in the signal processing subsystem (See e.g. ¶ at column 6, line 30.).

Regarding claim 4, Zhang further discloses recording the received first and second signals in a combination waveform; and determining the transmission latency between the received first and second signals from the combination waveform (See e.g. ¶ at column 6, line 50; also at column 7, line 27.).

Regarding claim 6, Zhang further discloses wherein the predetermined period is greater than a transmission latency period (See figure 4. The delay is shown as shorter than the predetermined period.).

Regarding claim 7, Zhang further discloses obtaining from the first signal a first pattern corresponding to the predetermined pattern; obtaining from the second signal a second pattern corresponding to the predetermined pattern (See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different.);

determining a first time-position corresponding to the obtained first pattern; determining a second time-position corresponding to the obtained second pattern; and determining a latency value between the first time-position and second time-position, the transmission latency comprising the determined latency value (See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.).

Regarding claim 12, Zhang discloses a system being implemented within a computing device comprising: a pattern insertion subsystem to insert a predetermined pattern into a first signal and a second signal, wherein the predetermined pattern is substantially sinusoidal and comprises a predetermined period; and a signal processing subsystem to (i) receive the inserted first signal and the inserted second signal wherein both include an original data stream and predetermined pattern (See figure 1. Reference and test path signals are received. See ¶ at column 3, line 13; also at column 5, line 1. Also see figure 4 and column 8, line 48. Also see explanation in section 2 above.), and (ii) determine a transmission latency between the received signals based on the predetermined pattern (See e.g. column 7, lines 50-65.).

Regarding claim 13, Zhang further discloses a filter subsystem to obtain a first pattern corresponding to the predetermined pattern from the inserted first signal and a second pattern corresponding to the predetermined pattern from the inserted second signal (See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different.);

a timer subsystem to determine a first time-position corresponding to the obtained first pattern, and a second time-position corresponding to the obtained second pattern; and a latency

determination logic to determine a latency between the first time-position and second time-position wherein the transmission latency comprises the determined latency (See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.).

Regarding claim 14, Zhang further discloses a recordation subsystem to record the received inserted first and second signals in a combination waveform (See e.g. ¶ at column 6, line 50; also at column 7, line 27. Also see ¶ at column 5, line 34.).

Regarding claim 15, Zhang further discloses a first input to receive the inserted first signal; and a second input to receive the inserted second signal (See figure 1, items 124 and 126. Also note.).

Regarding claim 18, Zhang discloses a non-transitory storage medium that provides software that, if executed by a signal processing subsystem, will cause the signal processing subsystem to perform the following operations: receive a first signal comprising a predetermined pattern; receive a second signal comprising the predetermined pattern, wherein both signals comprise an original data stream and a predetermined pattern and are substantially sinusoidal with a predetermined period (See figure 1. Reference and test path signals are received. See ¶ at column 3, line 13; also at column 5, line 1. Also see figure 4 and column 8, line 48. Also see explanation in section 2 above.); and

determine a transmission latency between the received first signal and the received second signal based on the predetermined pattern (See e.g. column 7, lines 50-65.).

Regarding claim 19, Zhang further discloses inserting the predetermined pattern into the first and second signals prior to the receipt of the first and second signals in the signal processing subsystem (See e.g. ¶ at column 6, line 30).

Regarding claim 20, Zhang further discloses the following operations:

obtain from the first signal a first pattern corresponding to the predetermined pattern; obtain from the second signal a second pattern corresponding to the predetermined pattern (See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different.);

determine a first time-position corresponding to the obtained first pattern; determine a second time-position corresponding to the obtained second pattern and determine a latency between the first time-position and second time-position where in the transmission latency comprises the determined latency (See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the

contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 8-11, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US 6,775,240), hereinafter “Zhang”, in view of Liu et al. (US 2006/0072628), hereinafter “Liu”.

Regarding claim 8, Zhang substantially discloses the method as set forth in 1 above. Zhang does not explicitly state both a plurality of first and second signals each containing the predetermined pattern. However, Liu discusses burst delay or the delaying of multiple packets (¶20). It would have been obvious to one having ordinary skill in the art at the time of the invention to apply the system taught by Zhang to a plurality of packets in order to account for burst delay.

Regarding claim 9, the combination of Zhang and Liu further teaches obtaining a plurality of first patterns corresponding to the predetermined pattern in each of the plurality of first signals; obtaining a plurality of second patterns corresponding to the predetermined pattern in each of the plurality of second signals; determining a plurality of first time-positions, wherein each first time-position in the plurality of first time-positions corresponding to an obtained first pattern (See Zhang, figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different.);

determining a plurality of second time-positions, wherein each second time-position in the plurality of second time-positions corresponding to an obtained second pattern; and determining a plurality of latency values between the first time-positions and the second time-positions, wherein each latency value in the plurality of latency values corresponds to a latency between a first time-position and a corresponding second time-position; determining an average latency value from the plurality of latency values, the transmission latency comprising the determined average latency value (See Zhang, e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.).

Regarding claim 10, the combination of Zhang and Liu further teaches inserting the predetermined pattern in a plurality of first and second signals prior to receiving the plurality of first and second signals in the signal processing subsystem (See Zhang, e.g. ¶ at column 6, line 30.).

Regarding claim 11, the combination of Zhang and Liu further teaches recording the received plurality of first and second signals in a combination waveform; and determining the transmission latency between the received first and second signals from the combination waveform (See Zhang, e.g. ¶ at column 6, line 50; also at column 7, line 27.).

Regarding claim 16, Zhang substantially discloses the method as set forth in 1 above. Zhang does not explicitly state both a plurality of first and second signals each containing the predetermined pattern. However, Liu discusses burst delay or the delaying of multiple packets (¶[20]). It would have been obvious to one having ordinary skill in the art at the time of the invention to apply the system taught by Zhang to a plurality of packets in order to account for burst delay.

The combination of Zhang and Liu teaches wherein the signal processing subsystem is to receive a plurality of first signals each comprising a predetermined pattern, and a plurality of second signals each comprising the predetermined pattern, the filter subsystem is to obtain a plurality of first patterns corresponding to the predetermined pattern in each of the plurality of first signals, and to obtain a plurality of second patterns corresponding to the predetermined pattern in each of the plurality of second signals (See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different.),

the timer subsystem is to determine a plurality of first time-positions, wherein each first time-position in the plurality of first time-positions corresponding to an obtained first pattern, and to determine a plurality of second time-positions, wherein each second time-position in the plurality of second time-positions corresponding to an obtained second pattern, and the latency determination logic is to determine a plurality of latencies between the first time-positions and the second time-positions, wherein each latency in the plurality of latencies corresponds to a latency between a first time-position and a corresponding second time-position, and to determine an average latency value from the plurality of latencies, the transmission latency comprising the determined average latency (See e.g. ¶¶s at column 7, line 66, and column 8, line 46. Also note figure 3.).

Regarding claim 17, the combination of Zhang and Liu further teaches wherein the first signal is received from an audio source and the second signal is received from an audio sink (See Zhang, e.g. abstract, “audio paths”).

Examiner Note: Examiner has cited particular paragraphs in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching of all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

/NS/

/Ayaz R. Sheikh/

Supervisory Patent Examiner, Art Unit 2476